

THERE IS CLAIMED:

1. A method of fabricating an aluminum nitride (AlN) substrate, wherein said substrate is obtained by spraying a powder onto a support at a high temperature and at a high speed, said powder including AlN grains covered with a layer of an oxide precursor chosen from oxide precursors yielding an oxide forming a liquid phase around said AlN grains during spraying.

2. The fabrication method claimed in claim 1, wherein said powder is sprayed by means of a plasma torch.

3. The fabrication method claimed in claim 1, wherein said powder is sprayed by means of a flow of air associated with an oxyacetylene torch.

4. The method claimed in claim 1 of producing an aluminum nitride (AlN) substrate, which includes said following successive steps:

- dissolving an oxide precursor in said form of an organometallic substance in an organic solvent,
- dispersing fine pure AlN powder in said solution previously obtained with vigorous agitation,
- atomizing said suspension thus obtained in an inert atmosphere to obtain said granulated powder, and
- spraying said powder onto said support.

5. The method claimed in claim 1 of producing an aluminum nitride (AlN) substrate, wherein said oxide is a rare earth oxide.

6. The method claimed in claim 4 of producing an aluminum nitride (AlN) substrate, wherein said oxide precursor is an yttrium oxide precursor and said AlN powder obtained after atomization includes said equivalent of 2% to 3% by weight of yttrium oxide.

7. The method claimed in claim 6 of producing an aluminum nitride (AlN) substrate, wherein said yttrium oxide precursor is yttrium isopropionate dissolved in

propanol.

8. The method claimed in claim 1 of producing an aluminum nitride (AlN) substrate, wherein said substrate is obtained by a plurality of passes over said support as a function of said required thickness.

9. The method claimed in claim 1 of producing an aluminum nitride (AlN) substrate, wherein said support is a metal support and is cooled by jets of compressed air during said step of spraying AlN powder.

10. The method claimed in claim 1 of producing an aluminum nitride (AlN) substrate, wherein said AlN substrate obtained by spraying AlN powder onto said support is annealed at a low temperature.